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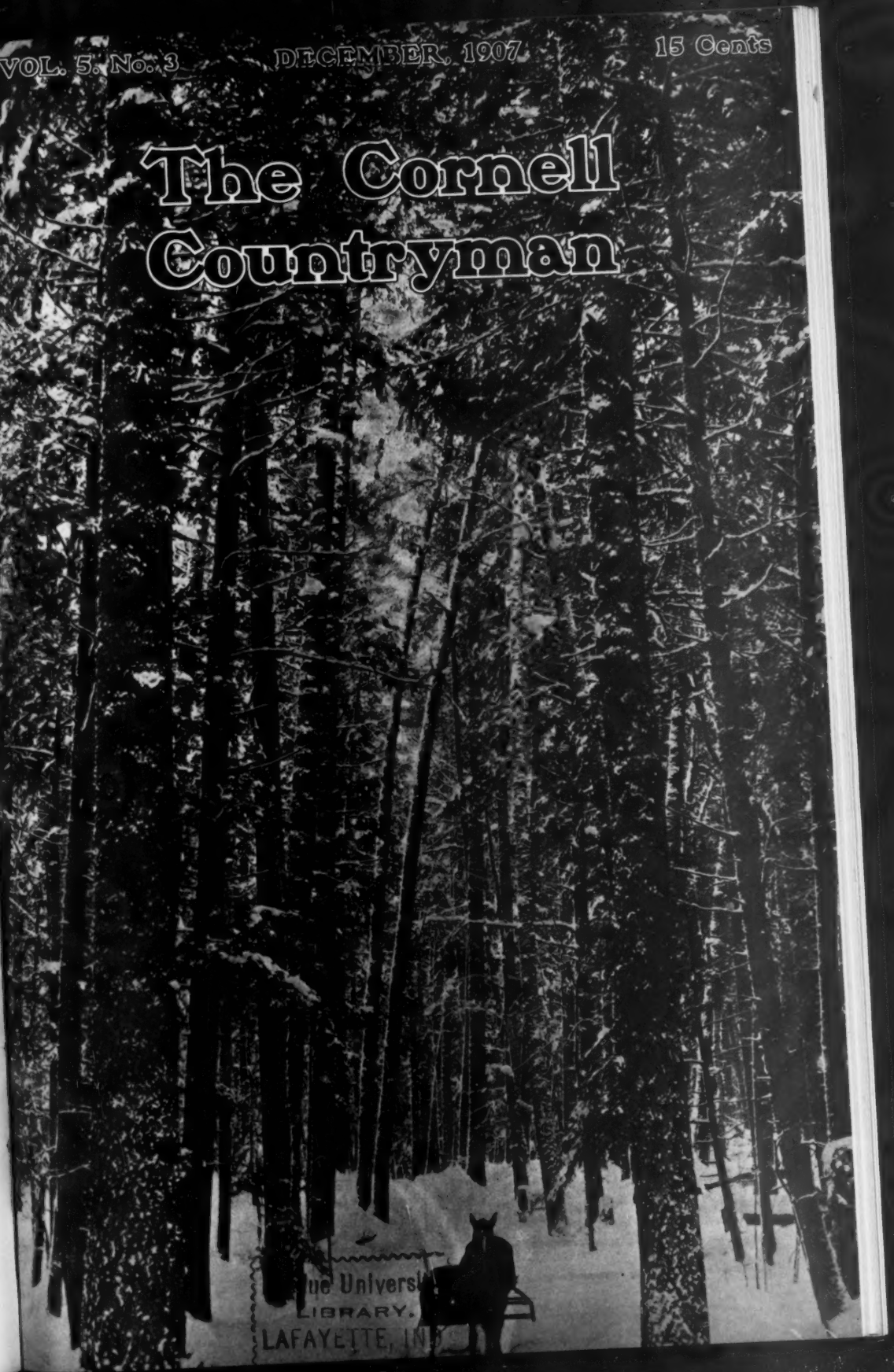
The Cornell Countryman



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CONTENTS

DECEMBER, 1907

		PAGE
Cover Design—The Cathedral of the Woods		
Frontispiece—The New Animal Husbandary Building		72
Food Control	*R. M. Allen*	73
A Country Agricultural High School	*H. O. Sampson*	81
Cabbage Raising	*C. L. Allen*	83
One of Dean Bailey's Ideals	*H. L. Richards, Sp.*	85
Making Good on the Farm	*D. E. Carley, Sp. '04*	88
Some Biological Effects of Agriculture		
II. Undomesticated Animals	*V. McCaughey, '08*	91
Peas for Canning	*F. S. Hayden, '08*	92
Reflections of a Senior	*R. Gilkey, '08*	93
Editorial		
"I am a Cornellian"		94
A Word of Appreciation		94
Active Life		95
An Undesirable Possibility		95
Light or Darkness		96
General Agricultural News		96
Campus Notes		98
Former Students		102
Book Reviews		104

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THE NEW ANIMAL HUSBANDRY BUILDING. See page 99

The Cornell Countryman

VOL. 5 DECEMBER, 1907 NO. 3

FOOD CONTROL

By Robert McDowell Allen

Head, Division of State Food Inspection, Kentucky Agricultural Experiment Station, Secretary, Association of State and National Food and Dairy Departments.

THINK of the result if a man's food were always simple, nourishing and pure, and, as far as possible, without going too much into theory or giving too much thought, the right food for the right season, work or age. Many influences contribute continually to prevent such a result—appetite in luxury, want in poverty, fraudulent adulterations, problems in the food industry, and a wide-spreading ignorance or carelessness among all classes of people as to what food to select, how to prepare it and protect it from spoilage or contamination. Food adulteration and misbranding is the initial work in the pure food issue, but the honest problems in the manufacture and distribution of food products, and the ignorance and carelessness on the part of the people will have to be studied and controlled before good food becomes an every meal fact.

The first operation of pure food laws is to bring about a plain and correct labeling—a label which will tell in readable type and simple English the name of the manufacturer or producer, the place of production, the date of packing or preservation and the true nature and substance. Yet, as fair as this requirement seems to be, it is opposed by many manufacturing interests, for the reason that the people might be in error in their preferances, and that the discriminations arising would lower prices and lessen the demand, or, in fact, annihilate an industry altogether. But the busy lithographers, crowded with orders, will tell you that labels are being changed. A can of lard labelled "Pure Leaf Lard" is either dumped and refilled with the genuine, or the old labeling is treated to a coat of paint remover and a new label pasted over stating "Beef Stearine and Cotton Seed Oil." Many of the "Quince," "Plum," "Currant" jellies are being re-labeled "Compound Glucose and Apple Stock Jellies." Syrups made in "Vermont" are either now made in "Cincinnati" or "Chicago," or the syrup makers of Quebec and Vermont are taxed to their limit to fill the millions of bottles and cans which have been labeled with some well advertised brand of "Maple Syrup" and which were filled with the imitation. Think of the wreck of the terms "Claret," "Tokay," "Burgundy,"—"peach," "apple," "blackberry,"—"10 years old," "aged in wood," "sour mash," "bourbon," "rye,"—"Kentucky," "Maryland," "California," "French,"—which appeared without restriction in the labels on adulterated or sophisticated wines, brandies, whiskies and other liquors. The labeling storm struck, according to the laboratory of Paris, sixty per cent of the wines, and will, according to the General Counsel for the National Wholesale Liquor Dealers' Association, strike ninety or more per

cent of all the "whiskies." Add to this the fear that the labels on proprietary medicines will not be such as will in no way deceive or mislead consumers, and there is some idea of the effect upon investments and what it means to win, and enforce with intelligence, fairness and without prejudice, laws requiring every substance intended for human consumption to be "exactly what it is represented or is supposed to be."

Manufacturers ask for a uniform label. There is some honest trouble in arranging the label of a wholesome compound to meet the varying provisions and rulings of State and Federal laws. But as much or more

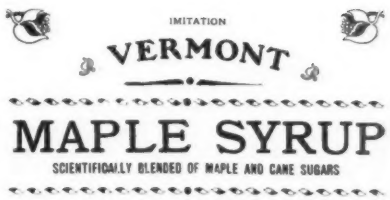
Known in the trade as an "Orphan Label." Designs of this kind were kept in stock by lithographers to be sold to the first imitation applying.

label trouble comes to an industry when attempt is made by means of unplain terms, type, and the general arrangement to still hold for a product the advantage of more or less of the old misbranding. The fruit people will have reason to complain of a lack of uniformity as long as attempt is made to put "Currant" somewhere in the label where there is none in the jelly. The packers will not free themselves from the objection of labeling laws until they change the label "Deviled Meats, Ham Flavor" to either read "Deviled Mixed Meats," or "Deviled Beef and Pork Scraps with Ham Favor." The National meat inspection authorities permit the packers to continue some of their old misbranding practices if they qualify with the terms "Style," "Flavor," "Brand." This concession was an error; and if, following the precedent, Syrup, Maple *Flavor*, Preserves, Quince *Style*, Extract, Vanilla *Flavor*, and Lard, Leaf *Brand*, are permitted, the food laws will be of little value to consumers. The prices will go up, with the change of quality, to suit former labels, and the manufacturers will tell the dealer, and the grocer, the consumer, "The pure food laws did it," instead of saying frankly: "I can still sell you a syrup of ordinary sugar, hickory bark and caramel; a freezer of frozen milk, colored and gelatinated to look like fresh ice cream, at the old price and still make more money than I get out of the pure."

It was an offense at common law to sell unwholesome provisions. Later, excellent health codes were enacted, and the State, municipal and County boards of health, without appropriation and with little knowledge of chemistry, were charged with the enforcement. These health laws were more or less dead letters except in dangerous instances. Then the food industries, permitted without restraint to adulterate or to prepare foods out of all classes of inferior material and in unsanitary surroundings, were eventually supplied the chemical means to cover up a deficiency and lead the consumer to always suppose that the things offered for consumption were fresh, or aged and ripened, pure and of standard quality. Science was asked by the trade to invent means whereby inferior material, substitutes and careless handling would never show in the finished food, and science, without other opportunity, and dominated by the demands of helpless trade, supplied the means to remedy instead of the means to prevent. But the profession of chemistry which supplied these means has discovered the imitation color, the antiseptic and the artificial flavor in the food supply, and has given expert testimony that these substances indicate adulteration and inferiority. The enactment of State

laws, municipal ordinances, and, finally, the National pure food law, has followed, and soon the pure food issue will resolve itself into a work of seeing that only wholesome materials are packed and that sanitary practices are strictly followed throughout in the preparation and distribution, questions which should have been studied and controlled at the beginning.

Oleomargarine was among the first imitations. Its sale as butter caused an unequal competition against the dairymen. Glucose went into the market as honey or New Orleans molasses. Spirit vinegar went into the market as apple vinegar. Many of the States instituted State dairy departments to control these adulterations. Laboratories were added, and the chemists in charge analyzed and collaborated extensive information concerning adulteration in other foods and in drugs and liquors. The State dairy laws were amended to include all products intended for human consumption, and a system of State and municipal legislation spread over the country in lieu of the vague health laws. In the enforcement of the State and municipal legislation there developed early the need for uniformity and the need for some power to punish the manufacturer responsible for the adulteration living in another State. The work, too, showed the need for scientific standards and the State officials early joined in an appeal to Congress for a law which would provide a remedy for these needs. Congress acted by degrees; in 1890 an inefficient meat inspection law, made more thorough in 1906; in 1896, an act to put certificate stamps on bottles of genuine whiskey; in 1897, a law prohibiting the importation of inferior teas; in 1896, an act taxing and labeling filled cheese; in 1885, a law taxing and labeling oleomargarine; and again in 1902, an act taxing oleomargarine colored in imitation of butter practically out of the markets; in 1902, an act prohibiting misbranding as to the State or territory of production. In 1903, the Secretary of Agriculture was authorized to put into effect the laws of 1890 against the importation of adulterated foods.



An attempt to comply with the letter of the law and still lead some consumers to believe that the syrup is "Vermont Maple."

Food adulteration was first brought to the attention of Congress on February the fourth, 1881, in a report from the Committee on Epidemic Diseases which had under consideration a bill "authorizing the President to appoint a commission to examine into and report upon the adulteration of food and other articles in the United States." The Committee said in its report:

"That they have investigated, so far as they could with the time and opportunities they have had at their command, the injurious and poisonous compounds used in the preparation of food substances, and in the manufacture of wearing apparel and other articles, and find from the evidence submitted to them that the adulteration of articles used in the every-day diet of vast numbers of people has grown to and is now practiced to such an extent as to seriously endanger the public health, and to call loudly for some sort of legislative correction. Drugs, liquors, articles of clothing, wall-paper, and many other things, seem to be subjected to the same dangerous process."

The Committee "derived" it says, "much information on the subject from Mr. George T. Angell, of Boston, who has devoted many years to its study and investigation, and to the collection of a large number of facts and statistcs connected with it which he embodied in a paper submitted to the committee." The collaboration which Mr. Angell read was astounding, and he quoted as his authority such men as Professor S. W. Johnson

of Yale, Dr. Kedzie of Michigan, Dr. H. W. Wiley, Dr. C. G. Wheeler of the University of Chicago, the reports of the Massachusetts State Board of Health and the writings and statements of a long list of microscopists, chemists, physicians and health officers. The glucose and oleomargarine industries, in later years the proprietary medicine, adulterated whiskey, artificial color, antiseptic and other interests forming the opposition, were active in delaying action by Congress. And, too, there was the usual disagreement among the friends of the pure food issue. The National Board of Health believed Mr. Angell too

This "orange" label is intended for use on bottled pops. The "reward of merit" is necessary in the label of a fraud for the purpose of making believe that the product has pssed some kind of efficient test. The food laws will require the mixture to be labled, *Imitation Orange Flavor.*

radical as to the effect of these adulterations upon health. Along with Mr. Angell's efforts, Mr. Thurber of New York City, a member of the National Board of Trade, and said to have been a large dealer in oleomargarine, offered a thousand-dollar prize for the best essay on food adulteration, and the legislation needed to control it. The prize measure resulting from these essays was modified to some extent and introduced into Congress. Its general definitions as to what should constitute adulteration were good but only provided a penalty not exceeding fifty dollars for violation. The executive officers of the National Board of Health were charged with its enforcement. The committee which examined the essays and awarded the prize had as its chairman the executive officer of the National Board of Health. "The report of this Committee," Mr. Angell says, "signed, and perhaps, as is common in such cases, written by its chairman, sets forth among other things:

1. That none of our staple articles of food or drink are so adulterated as to be dangerous.
2. That one of the main objects of legislation should be to nullify the operations of ignorant and sensational alarmists.
3. That adulterated drugs are more dangerous than adulterated foods.
4. That it is much better to do too little than too much.
5. That it would be unwise to attempt to secure uniform State laws.
6. That the law should not attempt to define in detail what is adulteration.
7. That the Board of Health should have power to exempt any article from the penalties.
8. That care should be taken not to make penalties excessive.
9. That under no circumstances should fees or moieties be allowed informers."

Mr. Brosius, a Member of Congress from Pennsylvania, introduced years later a splendid measure, prepared with the assistance of Dr. H. W. Wiley. These efforts in the House were followed by Mr. Hepburn of Iowa, always uncompromising against the arguments and influence of food and drug adulterators, and by the very extensive investigation made by the Committee on Manufactures of the Senate in 1899. Following this, Senator Porter J. McCumber of North Dakota, succeeding as Chairman of the Senate Committee on Manufactures, made food adulteration a special feature of his legislative work; and his fairness and firmness, during the investigations and in pressing the bill, brought the question to the attention

of the Senate and to the manufacturing interests in such a way that those who objected to the bill before the Committee or those who prevented its consideration in the Senate were compelled to give specific reasons, and this policy soon winnowed enough indisputable principles to form the basis of what was then known as the McCumber-Hepburn Bill. Senator Heyburn of Iowa succeeded Senator McCumber as Chairman of the Senate Committee on Manufactures; and Congressman Mann of Chicago, and Richardson of Alabama, gave Mr. Hepburn strong support in the House Committee and before the House. The measure passed the House but failed in the Senate. It was taken up as a new measure in 1905 and passed the Senate, went to the House where it was delayed until June, 1906, and only finally passed after a storming pressure of public sentiment and an unofficial message from President Roosevelt to the leaders of Congress that there would be a special and continued session of the National Congress if adjournment was had without the enactment of the meat inspection and pure food measures into law.

There has been no enforcement of this measure in the courts—as yet, and the conflicts from its enforcement will perhaps bring up the question of State and Federal jurisdiction more prominently than it has been brought up since the Civil War. Many reasons were advanced for the passage of the law, many reasons perhaps which were unnecessary and which could have found remedy in the State laws; but its passage by the National Congress won the pure food issue with the American public, a good illustration of the truth that local evils go on as a rule unchecked until they become a National disgrace. As a measure to apply to any violations which cannot be reached by State courts, to inspect the sanitary conditions and wholesomeness of material in plants like the packing houses—a task too large and costly for the State alone in which such an industry may be located, and of too much concern to the consumers in other States—and for the purpose of providing the most authoritative means for detecting and estimating adulterations, it will bring uniformity among, and needed support to, State and municipal laws. But as a National police measure, seeking through executive interpretations, large appropriations and numberless inspectors to guard the food supply of every community, it will bring about a conflict, and, in the end, fewer results than when each State and city guards carefully the purity of its own food supply.

There are States in the South which stand at the head in the amount of State appropriation to public schools, and at the foot in the amount supplemented by the countries and towns. Such States also stand at the bottom with a per cent of population who can read and write. The National govenment provides a dairy division to do missionary work among the cheese and butter factories and the city's milk supply; but, it is only as Wisconsin controls the supply, tests, sanitation and output of her own creameries that the standard of butter is raised, and only as Rochester investigates and daily inspects her own milk supply that there is any decrease in infant mortality. And by reason of long, efficient and honest State and city food control work there are ten or more States whose laws, knowledge and system for handling adulterations, and food, are ten or more years ahead of the work in other States, and will remain so, notwithstanding the National law, until all the States act and enforce their Acts. This is not meant to reflect upon a necessity for the regulation of interstate commerce in adulterated foods and drugs, but to emphasize the doctrine of State and municipal duty, and that no reform, like the pure food issue, ever goes into every day practice until the State, the city and the individual citizen assume their duty.

Tasteless and odorless preservatives and artificial flavors are the means through which consumers are deceived into purchasing adulterations. The

enactment of food laws cannot be too prohibitive regarding artificial colors. Some colors are poisonous in character but it is their fraudulent qualities which is the more reason for their entire prohibition. Caramel, the least harmful of them all, in fact, in itself a food, is the sheep's clothing which covers up some of the most wolfish practices. "Harmless caramel" is the cloak of adulterated whiskey, of imitation apple vinegar, and of artificial vanilla. Some of the aniline dyes are harmful, some are not; but a pinch of either class adds all the color which it takes a tree or vine a year to produce. The natural fruit is refreshing and invigorating, while the aniline, whether harmless or harmful, is without food value, lifeless and dead. Genuine color and flavor are the truest representations of quality and purity, and the artificial color or flavor is *per se* a deception. Imperfect food bears its own condemnation in its unpalatable flavor and inferior color, and must, therefore, be supplemented and disguised by the added artificial before it will sell. With artificial color to depend upon, there is little need for selecting the best suited feeds and treating and culturing cream in such a manner as to produce a delicious butter with sufficient natural color. Little attention has been paid to the growing of fruits and vegetables uniform in color and quality and to the treatment of the wholesale lot so that it will be uniform when it leaves the processes of preservation since no care in production or preservation can produce a color which can compete with that added by the aniline dye. In each and every instance whether in an oleomargarine or butter, in vinegar, jellies, jams, meats, and in the majority of candies and confections artificial color deceives consumers as to the quality and substance of the product colored.

Antiseptic preservatives like formaldehyde, boracic, salicylic and benzoic acids and sulphites are substances to be restricted, if possible, prohibited. This is the conclusion reached by all who have studied the subject impartially. It may be true that the general methods of gathering, storing and preparing fruit and vegetable pulp, the sanitation of the factories and the careless manner with which consumers handle prepared foods presents a danger greater than would be the effect of these antiseptics upon health, as some of those who defend antiseptics, no doubt honestly, contend. But it should be the continued and not impossible purpose of science to study and control the conditions which necessitate antiseptics, rather than to acknowledge the conditions as necessary and provide an artificial or possibly dangerous remedy. Already boracic acid has been taken out of meat, formaldehyde out of milk, salicylic acid out of beer and bottled fruit juices and jellies, and those who employ antiseptics to aid in the preservation of other foods do not defend the use on account of wholesomeness but because of conditions in the production and sale of soda fountain syrups, tomato catsups and similar articles of food put up ready to serve, and which remain open for a week or longer until the contents of the package is consumed. And in this defense the reason comes more from the market—rough handling and shipping, the hot grocery shelf and the careless consumer—than from problems in production. For the present the food laws are permitting this part of the problem to solve itself in requiring the label to state whenever antiseptics have been used in such foods. And even here, there is a difference of opinion among manufacturers. One firm states:

"All of our products are packed from absolutely pure, raw material, without coloring, preservative, or antiseptics of any kind whatsoever. We notice from some reports in regard to Catsup without preservative that it will not keep after being opened. This is entirely wrong; Catsup can be packed without preservative so that it will keep in splendid condition for an indefinite time, and we are so packing — Catsup.

"We will be very glad indeed for

the time to come when your Department will rule absolutely against all coloring matter and preservatives of any kind or description in any foods offered to the people."

Another very extensive packer of fruit and vegetable products stated before the Eleventh Annual Convention of the Association of State and National Food and Dairy Departments this summer at Jamestown:

"I assert from personal knowledge that there are no food products made of fruits and vegetables which the manufacturer cannot put on the market without artificial preservatives. Those manufacturers who today say that their business would be ruined if preservatives are eliminated will not say so—a few years hence. A few years ago some of them held that if coloring matter were prohibited it would ruin them. All of those men get along without coloring matter today, and I believe that the majority of them would not go back to its use even if it were permitted."

Another manufacturer looking at the matter from the standpoint of price says:

"Each and every one of us would naturally feel like we want to turn out the best goods at a reasonable price for the masses, as well as the classes, and if the use of preservative were eliminated the price of goods would be so high that the masses certainly would suffer and many articles of food which they now enjoy and which we believe to be produced today in a commercial way by the aid of Benzoate of Soda would have to be eliminated, or put up in such small individual doses that they would be beyond the purchasing price of the working classes, who compose the masses and where a few manufacturers in the United States can cater exclusively to the classes, the rest of us must take care of the masses."

There is something in this last contention, but not altogether as much as one might suppose. The staple foods like flour, meal, meat, sugar, syrups, dried fruits and canned vegetables, coffee, tea, butter, lard, pepper and other spices, and so on, have been more or less standardized, and adulteration in any of these is not only not economy but the added tax of fraud. The products in which antiseptics are now used are not absolutely necessary in every day consumption. Besides, if this is only a question of price there is a strong possibility that three-fourths of a quart of pure catsup or jelly in a smaller package be more economical and bring more pleasure and relish to the meal of the man who must practice economy, than would a full quart of a second grade product at the same price. It is from this line of foods that the retail grocer receives most of his profit. In fact, it might be said that the profits on fancy groceries finance the cost of distributing most of the staples.

There is now a system of municipal, State and Federal legislation throughout the country, imperfect still in some respects, but comprising sufficient authority to annihilate any adulteration which can be proven a fraud or an injury to health. The enforcement of these laws depends upon expert evidence which necessitates a standard method for determining the presence of adulterations and judging of the true qualities of substances. The Association of Official Agricultural Chemists early appointed a committee for this work and the Association of State food control officials appointed a similar committee from the State analyists. By arrangements these two committees are now working together and have for several years. The appropriation act for the United States Department of Agriculture contained authority for the conduct of this work under the authority and at the expense of the Federal government. Naturally those interests which opposed the passage and enforcement of pure food legislation oppose as well any organized attempt to discover and collaborate the truth, and from the influence of such interests the food standard clause in the agricultural appropriation act was thrown out on the objection of one member as being added legislation at the last session of Con-

gress, and although the Secretary of Agriculture himself has authority under the pure food law to continue this committee's work, nothing has been done. The committe, however, has the strong backing of the State food control officials and of the Association of Official Agricultural Chemists, and whatever these two bodies ultimately determine as the standard will carry the weight of authority. For the hearings before the Standards Committee have been so extensive and thorough and prolonged, their collaborations have been so extensive, and their final conclusions given after so much deliberation, and the standing of the members of the Committee of such high character that any disagreement to the standards which they have recommended to the States and the Federal Government will either have to be founded upon the influence of special interests or upon argument and discovery which has not heretofore been presented.

Among the questions which are now prominently before the food control officials are antiseptics in certain condiments and soda fountain syrups, the purity of jellies and other foods made from the by-products of canning and preserving factories, the sulphuring of wines and bleaching of canned and dried fruits, the bleaching of flour, bacteriological investigations and sanitary inspections, color in butter, and the entire prohibition of color where it is used for the sold purpose of deception, the regulation of cold storage, city milk supply inspection, inspection of bakeries and of local slaughter houses, standards for tin in canned foods, the effect of processing and hermetical sealing on vegetable bacteria and upon the food value of a product, the education of the food profession regarding the principles upon which the production and sale of wholesome food depends and the education of the consumer as to the care, preparation and nutritive value of what to eat and drink.

With the winning of the fight, in the passage of the National law, the pure food issue passes from a period of agitation to a work of construction. For this work the cities and States need inspectors who will go out, not only for the purpose of collecting samples, but who, with a knowledge of chemistry, bacteriology and proper sanitation, will be able to determine whether or not a product is being produced under wholesome conditions, inspectors who can not only criticise but will be able to suggest a practical remedy. In the cities there is needed and will soon be a large demand for men trained in the chemistry and bacteriology of milk and what is necessary to insure its wholesome production and delivery. There is needed and there will soon be, in each of the fifteen thousand or more food manufacturing industries throughout the country, a chemist closely in touch with the every day factory problems, and these industries will soon learn that they will be supplied with better raw material if the production is put in charge of men trained in the sciences of horticulture and agriculture. And there is needed besides an extension of the work of the State Experiment Stations so that in addition to the wealth building investigation given to the production of the grain, berry and pig, they will also study how to make the raw product into food. And through the constant and constructive coöperation with the legitimate food industries of the country, the people will have better things to eat, the industries will have more public confidence and more sale for their products, and it will bring as well an enlarged market to the producer.

A COUNTRY AGRICULTURAL HIGH SCHOOL

By H. O. Sampson, Principal.

Calvert, Md.

IN the rich corn and wheat belt of the northern part of Cecil county, Maryland, a country school of agriculture has been established. The school is the result of the efforts of the citizens of that part of the eastern shore to give their boys and girls a high school education with an agricultural trend that will better fit them for their life work as farmer citizens.

The course of study comprises regular work in the high school studies of mathematics, history, languages, literature, composition, science, etc., coupled with agricultural studies of a scientific and practical nature. These agricultural studies are as follows,—First year, plant studies and soils; class room, laboratory and field practicums; second year, field, orchard and garden crops, including cereals, forage and soiling crops; fruit studies of varieties grown in the vicinity, spraying, pruning, grafting, budding, etc.; garden crops adapted to the soil and climatic conditions; third year, domestic animal studies, including scoring, judging and care of live stock with special attention to the dairy industry; fourth year, farm management, care and marketing of produce, relative profits from various types of farming, introduction of new crops, etc. Farm and business arithmetic, farm book-keeping, botany, chemistry of plant and animal life and of soils, and field surveying are also included in the course.

Laboratory work and field practicums are made special features of the school work. Inexpensive apparatus is used for all experiments, most of the materials being brought from the homes of the pupils. Tin cans, plates, saucers, tumblers, pans, etc., are found useful in many ways. When an experiment needs a specially constructed piece of apparatus this is made by the boys themselves. Nearly all of the experiments outlined in Bulletin 186 of the Office of Experiment Stations, United States Department of Agriculture, have been demonstrated in the laboratory of this school. Last year when a representative of the Department of Agriculture asked the pupils which phase of the work they remembered and enjoyed the better, laboratory or class room exercises, they readily answered, "the laboratory experiments".

COURTESY OFFICE OF EXPERIMENT STATIONS

JUDGING SEED CORN

Use is made of nearby farms for the purpose of studying field operations, viewing live stock, examining farm machinery, etc. It is hoped, when added land can be secured, to have plat experiments of special interest to the farmers of the region cared for by the pupils of the school.

The school has been a direct benefit to the community by doing something for the farmers. Orchards have been sprayed, seed corn selected and tested, soils tested for acidity, fertilizer mixtures selected and clover seed tested for germinating power and adulterants contained. As the institution grows,

COURTESY OFFICE OF EXPERIMENT STATIONS
STUDENTS SPRAYING AN ORCHARD

more of this work for the farmers will be done. A Babcock milk tester will be installed and any milk brought to the school will be tested free of charge, oats and wheat will be treated for smut with formaldehyde, more spraying demonstrations will be given, potatoes will be treated for scab, and rations for farm animals will be computed. Such work it seems cannot fail to be of much use to the farmers.

Much interest has been aroused in the school by public meetings held from time to time at which such men as Professors Spillman and Crosby of the U. S. Department of Agriculture, President Silvester and Professors Taliaferro, Symons and Porter of the Maryland Agricultural College, and Superintendents Stephens and Purdum of the State Educational Department have been the principal speakers. The good ideas carried away from such meetings have had the effect of bettering farming conditions in the neighborhood.

A corn show is to be held by the school in the near future. Ten ears of seed corn selected according to a score card will be a sample. Prizes will be given for the best samples shown; first, by competitors from the county, second, by competitors from the elective district in which the school is situated, and third, by competitors who are pupils of the school. Such a show no doubt will get the farmers more interested in better seed corn selection.

Thus we see that such a country agricultural school can be made a direct benefit to the community, not only in giving instruction in agriculture to its pupils thereby making them more interested in farming, but also by bringing practical studies home to the parents.

CABBAGE RAISING

By C. L. Allen

Floral Park, N. Y.

THE first requisite for a good crop of cabbage is good plants, the importance of which is but little understood and sadly neglected, excepting with the trucker or market gardener. The old truckers of Long Island fully understood this matter, and were so thorough in their methods that failure of crop did not enter into their calculations. Experience had taught them that, with properly grown plants, the crop was as sure and as profitable, in fact more so, than any of their other productions.

At the start, let us say, that for a successful crop, from the time the plant makes its appearance in the seed-bed until the crop is ready for the harvest, it should never receive the slightest check in its growth. This is particularly true with the early Flat Dutch varieties, of which the "All Head" and "Early Summer," are the best types. When the growing of cabbage from cold-frame plants was the common custom these varieties could not be grown, as they would, almost invariably run up to seed, instead of making heads, which was wholly due to the check received in transplanting, while the wakefield types would perfect their heads without loss, but by no means as satisfactorily as when grown by the present methods which are as follows:

For an early crop the seed is sown in a green-house, which is used at other seasons for the growing of lettuce, cauliflower and radishes. The seed is sown during the first week in February, in shallow boxes, or flats, two and one half inches deep, filled with finely prepared soil, made friable with thoroughly decomposed vegetable compost, such as would be taken from an old hot-bed. This soil is all sifted through a quarter-inch seive, and is not rich, but light and fine, permitting the roots to spread in every direction. The seed is sown thinly in drills one inch apart, thinly covered, the depth of soil not to exceed the diameter of the seed, the soil being firmly pressed over them, and then sprinkled gently.

These boxes are placed near the glass where the young plants can have plenty of light and air, which will give them health and strength of growth. The temperature is not allowed to go higher than 65° by day, and lower than 42° by night, which is necessary for vigor of plant. Germination will be quick and rapid growth will follow. Within two weeks from the sowing of the seeds, the second leaves of the plants will be about one quarter of an inch in length, at which stage the young plants are pricked out and set in other flats filled with soil of the same character, and prepared in the same way, and set in rows one inch apart and one half inch apart in the rows.

When the third pair of leaves are about one inch in length the plants are again pricked out as before, but set one inch apart each way. The same character of soil being used, and the same attention in every way given them. The boxes are kept as near the glass as convenient to prevent the plants from being drawn up, and full ventilation is afforded, whenever the conditions of weather will permit.

The plants are thus grown until time for setting in the field, which is usually about the middle of April, but never until the soil is in a condition to work up fine and there is encouraging warmth in the atmosphere. The plants are now strong and compact, about as broad as tall. In removing them from the boxes care is taken not to disturb the roots, which are a compact ball or mass of fibre. The ground is marked out in drills thirty inches apart, and the plants are set 15 inches apart in the rows, which gives about 11,000 plants to the acre.

The farmer formerly planted about fifty acres of early cabbage annually.

If the weather is favorable these fifty acres are now planted very quickly, as sufficient help is employed on this farm of 260 acres, to accomplish any piece of work in a short period. The last work in transplanting is to sprinkle a handful of powdered shell-lime around each plant, care being taken not to have it come in contact with the plant. The lime is used as a preventive of club-root, and for the destruction of the grub, which is so destructive to the cabbage. The value of lime for all crops, but more especially for the *Brassicas*, is highly importantant, and where the land is continually yielding two or more crops in a season, it can scarcely be over estimated. The unwritten law of agriculture is that two or more crops of any of the Brassicas should not be grown in succession on the same field, as club-root would result. But where shell lime is freely used there is no danger. This is clearly shown by the fact that the farmer of whom we are speaking, gets a crop of cabbage every year from the same acres, by following his crop which is marketed in June, with either beans or squashes; and where early potatoes are followed by late cabbage which is a common custom of our Long Island truckers. On this farm a car-load of shell lime is used annually and club root is unknown.

LATE CABBAGE.

In some respects the late cabbage is a more difficult crop to grow than the early. In Spring it is easy for plants to grow, it is their time. It is not so from mid-summer to autumn, or, we should say to early autumn. The seed starts slowly, insect enemies are active and abundant, the weather is more unfavorable for transplanting, and uncertainity seems to follow every step. On the other hand mother earth tenderly cares for every seed intrusted to her care, and, if the farmer will act well his part, Nature will do the rest.

The preparation of the seed bed for late cabbage plants, should be undertaken as soon as the soil is sufficiently dry to work up as fine as possible. After the plowing, use the harrow, and make the soil fine to as great a depth as it has been plowed. After the harrow has finished its work, put on the roller, making the surface as smooth as the house floor, then cover the surface to the depth of four inches with course litter from the stable, or sea-weed if procurable, or any convenient mulch that will prevent evaporation.

The benefits arising from this method are manifold. First, the work will be done on time and the bed will be in readiness when wanted. Second, the soil will at all times be moist underneath the mulch, so that the seed can be sown at the proper time, no matter how dry the season may be; and there will always be sufficient moisture in the soil to carry the plants until they are sufficiently large to transfer to the field. We find it advantageous to cover the bed, after the seed is sown, with excelsior or some light mulch, taking the same off as soon as the plants are fairly up.

The time for transplanting arriving, whether the weather is favorable, or the reverse, the work must be done. If the soil is in the proper condition, if the principle of tilth has been respected, and sufficient amount of plant food furnished to feed the hungry plants, then, with one other precaution, the crop is assured That necessity is to puddle in the plants. If properly done, it matters not how dry, or hot the weather may be; success is certain. Cabbage plants should, if possible, be set before a storm, and never immediately after one.

This may seem inconsistant, as it is contrary to old established customs, none the less it is a fact. We have given this subject much attention, as we must needs do in growing annually several hundred acres for seed purposes; our experience has taught us conclusively that the most unfavorable time for transplanting is immediately after a heavy rain, the time usually selected tor the work; while the most favorable time is just before one As this cannot always be determined, the safest, hence the most economical plan, is to put out the plants on a cloudy

and not very hot day. If the plants have been properly grown they will be about four inches high and very stocky.

When the ground is marked off, one person (a boy will do the work as well as a man) goes ahead, makes a hole with a dibber and drops the plant in it. In this work there should be a guide on the dibber to prevent making the hole too deep. The second person pours into the hole about one-fourth of a pint of water, and the third packs the wet soil, or mud as it should be, firmly around the roots, then covers the surface with loose fine soil to prevent evaporation.

We have tried this method repeatedly ; in fact, for the last twenty years have employed no other, never losing a plant, except it be by insect or accident. What is still more important, since the plants are in nowise checked, growth commences immediately and success is assured.

We are often asked what is the best soil for cabbage? This is an arbitrary question, and the only answer is, the best you have. Because you cannot change it if you would. Clay will be clay, sand—sand, and loam cannot be other than loam. It is not the character of soil but its condition that makes the crop. Tilth is the means to the end. Make your clay as fine as your sandy soil, by systematic tilth ; make your sandy soil as rich in plant food as your loam or clay, and your results will be equal. We find in our seed growing districts, that it is the man, the horse and the plow, working together in harmony of purpose, not the soil, that gives us a crop.

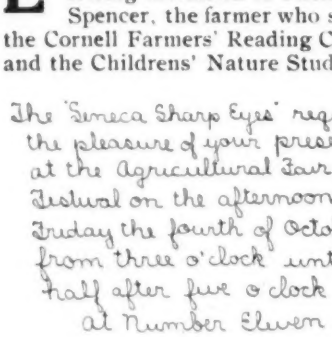
Wherever we find a farmer that keeps the plow constantly at work, whenever there is an opportunity, we find the man that gets the largest crops. Better by far to plant cabbage on a field that has been plowed and harrowed six times, and plant without manure, than to plow but once and put on a ton of fertilizer to the acre.

ONE OF DEAN BAILEY'S IDEALS

A DISTRICT SCHOOL AGRICULTURAL FAIR

By Helen L. Richards, Sp.

EARLY in October came the following invitation to Uncle John Spencer, the farmer who started the Cornell Farmers' Reading Courses and the Childrens' Nature Study :


The 'Seneca Sharp Eyes' request
the pleasure of your presence
at the Agricultural Fair and
Festival on the afternoon of
Friday the fourth of October
from three o'clock until
half after five o clock
at Number Eleven

He could not go and asked if I would for him. Now as this is just along the line I am working to see what can be done on the social side of rural education, Dean Bailey gave me the permission to go and Uncle John the written directions. The directions were to go to the hotel in Geneva and arrange for the afternoon drive to Seneca which is about five miles beyond. This I did, then went to the State Experiment Station.

Dean Bailey had given me a message for Director Jordan, and, after a little visit in his office, we went to see Mr. Heddrick, who is getting out a beautiful book on the grapes of New York State.

Now Mr. Heddrick is alive to the social side of life as well as the intellectual, and when he found what my plans were for the afternoon, asked if he might cancel my livery order, and would I drive out with Professor Beach and him, as they were going out a mile or two beyond the district school. Soon after one we started out. On the way Mr. Heddrick told me much

THE SCHOOL HOUSE AT SENECA

about the neighborhood, of historical interest. It has been occupied by white settlers since the Revolution. Owners not tenants, live on the farms. There was established a hundred years ago a Scotch Presbyterian church—called No. 9—where they have ninety-nine covered horse sheds *and use them*.

The school house we found was set back one hundred and fifty feet or more from the road. A number of young trees have been planted about, and the flag was flying from the top of the newly painted building. It was a little after three when we arrived. The children, in their best clothes, were going in and out, and inside the room was a very gay holiday spirit. Miss Moore, the teacher, "Heavenborn" as Uncle John well said, came forward to meet us. She was an Irish woman, with a strong, kindly face and hearty manner; and that Uncle John had thought it worth while to send some one, when he could not come, pleased her very much.

Mr. Heddrick was so much interested in the exhibit that he brought in Professor Beach and they were both taken in a picture showing the children's exhibits. Then, promising to call about five, they went on their errand.

First, let me tell you about the school room,—it was the regulation district school room, rectangular, two doors at the rear opening into a vestibule, raised platform for the teacher's desk. But the walls were not regulation. They were freshly painted in two good greens, and over the blackboard and around the sides of the room a beautiful frieze had been made for the occasion of mountain ash and red haw boughs. In the rear of the school room the exhibits were arranged on boards laid across the desks, and on the little flower stand of several shelves. Each door was guarded by bunches of tall corn stalks and between were hung ears of golden corn, of white, black, red, Flint, Dent, and Popcorn. The stove was garlanded with heads of Brussels sprouts. Among the exhibits were cabbages—fine solid ones; tomatoes, large and small, red and yellow; quinces, pears, prunes, plums; many kinds of apples and nuts, and some flowers.

There was no set program, but first photographs were taken of the exhibit indoors, of the children's pets—dogs, cats and ponies—outside, then, one of us all on the steps and then one of the Dahlia Club. This is composed of the older girls of whom the

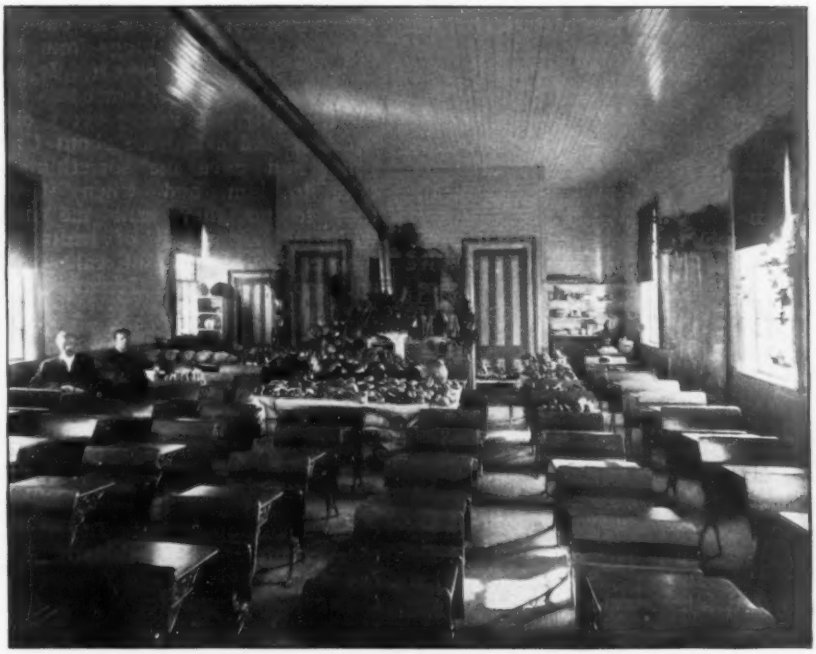
teacher is very proud, and who have gone on now to High School. One day, before there was a club, when a friend offered some fine dahlia tubers to Miss Moore, she asked that they be given to the girls instead; but the friend objected, saying the girls would not care for them. Said the teacher, "Some girls might not, but just try these." So the girls were given the dahlias and are growing great, beautiful ones.

There were in all some thirty or more visitors and twenty-eight school children. Fathers and mothers and wee little ones, the school trustee, the country doctor, Mr. Allen, and the dear pastor, Mr. Temple, were there.

While the girls were singing and playing "Old Lang Syne" and the songs that go with it, the teacher showed us a giant waterbug that one boy brought in with a "guess I got all the fellows beat on beetles." Then the trustee showed me the sea shell collection in the oak cabinet with glass doors that stood on the platform, and told me how much they thought of their teacher and her work, how interested the children were in finding out about all these things from out-of-doors, and wished that he had had a chance to when he was a boy.

Then Mr. Rupert and Mr. Hazlett, two of the fathers came up and explained how some six years ago they decided they wanted their children to have a better teacher and had some exciting school meetings. But they had their way,—they had to keep some one reading School Law for about two hours one night while some of the others fetched in more folks for they hadn't a vote to spare that night. Then they got Miss Moore. They paid her $12 a week, not as much as they should have, but, more than most districts did.

Well, after they got her, there was some ugly opposition, but the boy from the worst family brought in one day a new bug that they couldn't de-



THE EXHIBIT

cide about, some thinking it was one kind and some another. "Well," the teacher said, "let's write and ask Uncle John." The boy did. Uncle John took no end of pains to find out about it and wrote back. "Well, do you know, there wasn't one bit more trouble there; that family, too, thinks it's all fine."

After some one asked us to please sign in the Visitors' Book, the doctor and I in looking over some of the children's treasures on the other side of the room, found a big fungus ten inches across, and like an old-fashioned bouquet, and a pint of empty cicada shells. "Well," the doctor said, "it all just makes you feel that you'd better be waking up to see what you can do to help. Now, I've got a bust of Grant that I am going to bring down."

"We're all here now, I guess, and if you'll take seats, please." the teacher said, "we'll have some refreshments." I had forgotten to say that in the alcove at the back, where the girls usually hang their coats and hats, the shelves had been cleared and were full of pies, cakes and cookies, and that on the little oil stove coffee and tea had been made. It was good to see boys and girls, two in a seat, eating all the cake and pie they wanted. And how, how shall I tell you about the spirit abroad in the room—how many a hostess would give much to be able to have it at her reception or party. It was an alive affair; they were all glad to be there; their social natures, their souls, were truly being fed, along with the generous quarters of pie we were eating. Two cakes had been brought for competition, and after careful judging, both girls were given prizes of boxes of candy the same size.

We had roamed around, visited, and now were called to our seats again, and each of us older children was asked to speak. The teacher asked me first because I represented Uncle John. I only tried to tell them how glad I was to be there, and how glad Uncle John and Dean Bailey would be when I told them about it—and they were. Then the doctor and the trustee and other fathers spoke, telling stories and praising the work of the pupils. And then three cheers were given for the teacher.

About this time Prof. Beach and Mr. Heddrick came back and were asked to say a word. Their word was very good; they had both grown up in a district school, had taught district school as young men, and now told these boys and girls, fathers and mothers about it. As one mother said afterwards "it's so good for our children to hear such things from *these* men. They'll not forget it. It may help them to *try*." At some time during the afternoon nearly every child came up and asked me about Uncle John, and gave me something to take to him, and when it was time to go they sent me away with my arms full of fruits and flowers and a box of cakes, pies and cookies for him. It *was* a happy day.

MAKING GOOD ON THE FARM—III.

By D. E. Carley, Sp. '04

Lisle, N. Y.

As the *Countryman* comes to me month by month, I eagerly scan its pages to find out what my old school-mates and friends are doing.

As I look down the list of former students, I find that this one has secured a position with the Department of Agriculture at Washington, that one is teaching at some Agricultural College, another has settled on a ranch in the West and still another has gone back to the "Old Homestead." How wide and diversified

BEAUTY MECHTHILDE DEKOL NO. 78248

are the duties of the Agricultural College. It must train the young men and women not only to be expert teachers and experimenters but to be expert farmers as well or the college has failed in its mission.

Of all the lines of work that the college student takes up after leaving the University, none are so closely watched by his old neighbors and friends as the one pursued by him, who goes back to the old homestead to make good on the farm. They are the "sample goods" sent out by the college to the people of the state to prove to them that an Agricultural education is of the greatest importance to the ambitious lad who intends to remain on the farm. How much it behooves us (for I am one of the number) who have gone back to the farm, to make good.

How we are to make good is a question which each of us has to solve for himself and should depend largely upon our personal likes and dislikes in choosing the line of work which we are to take up.

Let us each take up some line of work and do it better than anyone else in our neighborhood. If it be the raising of potatoes, strive each year to get a bigger and finer crop than anyone else and you will soon be known as the champion potato grower in your locality. And so it will be with all of the different lines of work that may be taken up.

In my case being brought up on a dairy farm and being a natural lover of animals, I chose their breeding as my chief line of work. Believing that the breeding of pure bred animals was the highest type of agriculture and that the Holstein-Friesian cow was the best and most profitable cow under all conditions, I made her my choice. My ambition was to become the owner of the finest herd in the old county of Broome and I believe that purpose has been accomplished. White Spring Farm has never been in as fine shape,

BUILDINGS ON WHITE SPRING FARM

or the herd of dairy cows that roam its pastures as good, as at present.

Starting in a small way with four heifer calves purchased of E. C. Brill of Broadway, N. J., I have bred up until at present, with the exception of a half dozen grades, our herd is composed entirely of pure bred Holsteins. The demand for pure bred stock has been very good and sales numerous. White Spring Herd is headed by a son of Prince Ybma Spofford whose dam made an official record of 30.38 lbs. of butter in seven days, and gave 100 lbs. of milk in one day. She was purchased by Mr. Field of Massachusetts, for the sum of $6000. Our sire is a brother to the one recently purchased by Professor Wing to head the University herd.

I believe the breeding of pure bred stock, whether it be cattle, sheep, swine or other farm animals, to be a good line of work for the college student as he goes back to the farm. He will find a chance to use all his skill and energy, and will always have something that he can take pleasure in showing his neighbors and friends. Moreover the better class of animals will always find a ready sale at good prices, while the poor animals are often bred and reared at a loss.

Perhaps we cannot all become successful breeders of animals or growers of potatoes. Perhaps some of us will not make as good farmers as some of the best who have never had a college training, but quoting from Prof. H. E. VanNorman in the Indiana Farmer:—

"Not every colt trained on the track becomes a prize winner, though every one may make a faster mile than he could have made without the training. Not every boy who seeks the benefits of an agricultural education will outshine all the farmers in his county as a result of it, but it is reasonable to expect every one of them to be better farmers, better men and better citizens by reason of the opportunity offered by a term or more at an agricultural college, not the least of which is the meeting of scores of other young men from various parts of the state who have ambition and push enough to break away from the routine of the farm and seek that which shall aid them to have better farms, better stock and a larger measure of enjoyment from their labor, because these things are better."

"The most active period of all the world's activities is now waiting—as near as this busy world can wait about anything—peering anxiously into and along the ranks of all young men for those who know how."

Fred H. Rankin.

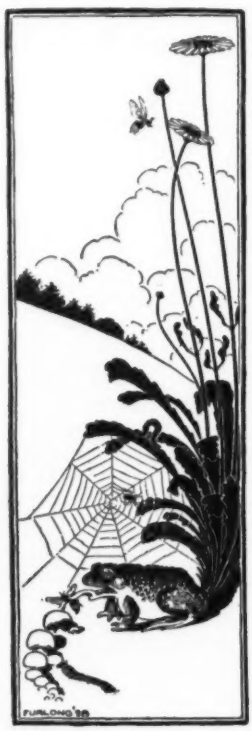
SOME BIOLOGICAL ASPECTS OF AGRICULTURE

II—UNDOMESTICATED ANIMALS

By Vaughan McCaughey, '08

THE basis of farming is the caretaking of plants and animals. This well known aphorism was discussed in the introduction to this series; it is now purposed to consider more particularly the farm animals.

It is obvious that the animals on any farm may be divided into two classes—domesticated and undomesticated. The domesticated animals,—horses, cattle, poultry, and the like,—familiar to all, have been under the direct care of the farmer for hundreds of years. Exact and detailed knowledge of them has accumulated during this long period, and has reached, especially in its practical applications, a high degree of perfection, as evinced by the modern methods of producing beef, milk, eggs, wool, etc. The economic value of these animals to man has constantly increased, and will doubtless continue to do so.



The *undomesticated* animals on the farm,—wild mammals, birds, insects, salamanders, etc., those not usually controlled directly or consciously by man,—are, however, in quite another category. These wild creatures, many of them very tiny, many very shy, many nocturnal, are largely unfamiliar or unknown to the farmer. His knowledge of them is always decidedly fragmentary, and frequently inexact. They do not appeal to him as being of particular economic interest, except in occasional instances, such as scale on his fruit trees, or crows in his corn. Thus this vast host of undomesticated animals, whose number is veritably legion, and whose economic value is very far from zero, has hitherto been generally overlooked and unrecognized by all save the scientist.

Many of these undomesticated animals have a very decided value to agriculture. Perhaps the best instances of this is the much-abused toad, usually thought of as an ugly, humpy, disseminator of warts, but in fact an exquisitely beautiful and cunningly devised machine for the wholesale destruction of noxious insects. A careful study of its food has revealed many such striking facts as these,—55 army worms found in the stomach of one toad, 65 gypsy moth caterpillars in another, 37 tent caterpillars in a third, and so on. Cutworms, snails, white grubs, ants, wireworms, grasshoppers, etc., make up the larger part of the toad's food, and its value as an insect destroyer has finally become so well recognized that European gardens are reported to pay twenty-five dollars per hundred live toads, to set free in their gardens.

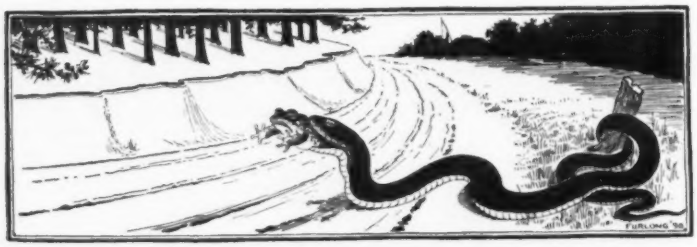
Earthworms are not commonly thought of as of great importance, yet Darwin's extensive experiments have conclusively shown that they are the great makers of good soil, that the lands of the temperate regions had been plowed and replowed, turned and returned, many times before there was either man or plowman, and that profitable agriculture rests to a very considerable extent upon—earthworms.

We find, naturally enough, among the "undomesticated" animals, many

whose status in relation to agriculture has not yet been determined. A small crustacean, commonly called "sow bug" or "pill bug" is found abundantly in dark, damp places, and yet but little is known either of its life history or habits. In summer time the fields and woodlands are alive with many species of ants, but it is difficult to speak with certainty concerning their agricultural value.

Other "wild" animals are evidently detrimental. Numerous insects, the wild mice, woodchucks, etc., belong to this class. These need, not "domestication," in the common usage of the term, but efficient control. Such control marks a high development of knowledge of natural laws.

The ideal agriculturist should therefore take into account, not only the domesticated animals personally under his care, but also these other equally interesting creatures, whose economic importance is concomitant with the degree of control that he should exercise over them.



PEAS FOR CANNING

By F. S. Hayden, '08

WITH the present scarcity of labor and the other unavoidable circumstances which interfere with farm management, the farmer is often faced with the problem of obtaining a profitable substitute in his rotations. Whatever local difficulties may arise in the management of canning factories, they are of great agricultural importance to their communities. Peas is, perhaps, the most significant crop in the problem of farm management.

The raising of peas for canning has three elements of economic importance to the farmer. First, it offers a very quick and fairly large return. The crop is planted at intervals for five or six weeks after the earliest possible sowing. It is harvested and marketed in the same operation before the middle,—usually before the first of August. At one and three-quarters cents per pound for the shelled peas, the returns range from $30.00 to $75.00 an acre with possible yields worth from $100.00 to $150.00 per acre.

The second factor is the economy of

labor. A thorough preparation is necessary but after sowing no attention is needed except perhaps two or three cultivations with a weeder to destroy weed seedlings and make a mulch. Harvesting may be carried on under any weather conditions permitting a team on the field, and is the only part of the operations requiring prompt and continuous concentration of labor.

The third important feature is the value of peas in a rotation. It may follow almost any crop and precede any except grass. It has the beneficial qualities of all legumes making it an excellent crop to precede wheat. This is, perhaps, the most important feature from the broader agricultural point of view, in offering a not exhaustive crop suited to a wide range of circumstances.

Raising peas is no gold mine. It has its difficulties, but with its quick and considerable return, its economy of labor, and its value in farm management, the possibility of raising peas for canning is a valuable asset to any locality.

REFLECTIONS OF A SENIOR

By Royal Gilkey, '08

A MAN'S college course is a period of awakening. The average freshman enters college a bundle of possibilities which are waiting to be made into actual ability. The senior leaves college wishing he had the four years in front of him again in the light of what he has learned from his altogether too brief college experience. He knows if he were to start in again he would make a much better college record. It is an important question to consider whether the experience of the senior cannot be made of some advantage to the freshman.

The opportunities are wide open in the College of Agriculture for the upperclassmen to become advisors and examples and in other ways to help the underclassmen become better able to make full use of their opportunities. We have here a feeling of interest in each other because we are all comrades in a common life work. A stranger has only to say that he is interested in agriculture and we have something to talk about. What interests one interests all, and the gain of one lifts up agriculture somewhere. Furthermore, we have the social spirit, or the desire to get acquainted with each other. This has been fostered by the Assembly. Few college customs bear such good results as does this one where everyone loosens up his serious look and comes out of his shell to shake hands with, and talk to, his neighbor. Most important of all, we have the student organizations, some of which are the Association, Lazy Club, Round Up Club and Poultry Association. These give us a still greater community of interest and stimulate the making of friendships. They contain in themselves the most practical means of coöperation with the underclassmen.

The great opportunity to increase the value of an undergraduate experience at our college is open to the upperclassmen through the student organizations. Let them all come out and get acquainted with all the underclassmen. Let them show greater interest in the welfare of the underclassmen. As soon as they do this they will have as great an opportunity as they are willing to embrace to do good to the newer members and their influence will be great in the degree that they are good examples of what several years of college training can do for the individual.

whose status in relation to agriculture has not yet been determined. A small crustacean, commonly called "sow bug" or "pill bug" is found abundantly in dark, damp places, and yet but little is known either of its life history or habits. In summer time the fields and woodlands are alive with many species of ants, but it is difficult to speak with certainty concerning their agricultural value.

Other "wild" animals are evidently detrimental. Numerous insects, the wild mice, woodchucks, etc., belong to this class. These need, not "domestication," in the common usage of the term, but efficient control. Such control marks a high development of knowledge of natural laws.

The ideal agriculturist should therefore take into account, not only the domesticated animals personally under his care, but also these other equally interesting creatures, whose economic importance is concomitant with the degree of control that he should exercise over them.

PEAS FOR CANNING

By F. S. Hayden, '08

WITH the present scarcity of labor and the other unavoidable circumstances which interfere with farm management, the farmer is often faced with the problem of obtaining a profitable substitute in his rotations. Whatever local difficulties may arise in the management of canning factories, they are of great agricultural importance to their communities. Peas is, perhaps, the most significant crop in the problem of farm management.

The raising of peas for canning has three elements of economic importance to the farmer. First, it offers a very quick and fairly large return. The crop is planted at intervals for five or six weeks after the earliest possible sowing. It is harvested and marketed in the same operation before the middle,—usually before the first of August. At one and three-quarters cents per pound for the shelled peas, the returns range from $30.00 to $75.00 an acre with possible yields worth from $100.00 to $150.00 per acre.

The second factor is the economy of

labor. A thorough preparation is necessary but after sowing no attention is needed except perhaps two or three cultivations with a weeder to destroy weed seedlings and make a mulch. Harvesting may be carried on under any weather conditions permitting a team on the field, and is the only part of the operations requiring prompt and continuous concentration of labor.

The third important feature is the value of peas in a rotation. It may follow almost any crop and precede any except grass. It has the beneficial qualities of all legumes making it an excellent crop to precede wheat. This is, perhaps, the most important feature from the broader agricultural point of view, in offering a not exhaustive crop suited to a wide range of circumstances.

Raising peas is no gold mine. It has its difficulties, but with its quick and considerable return, its economy of labor, and its value in farm management, the possibility of raising peas for canning is a valuable asset to any locality.

REFLECTIONS OF A SENIOR

By Royal Gilkey, '08

A MAN'S college course is a period of awakening. The average freshman enters college a bundle of possibilities which are waiting to be made into actual ability. The senior leaves college wishing he had the four years in front of him again in the light of what he has learned from his altogether too brief college experience. He knows if he were to start in again he would make a much better college record. It is an important question to consider whether the experience of the senior cannot be made of some advantage to the freshman.

The opportunities are wide open in the College of Agriculture for the upperclassmen to become advisors and examples and in other ways to help the underclassmen become better able to make full use of their opportunities. We have here a feeling of interest in each other because we are all comrades in a common life work. A stranger has only to say that he is interested in agriculture and we have something to talk about. What interests one interests all, and the gain of one lifts up agriculture somewhere. Furthermore, we have the social spirit, or the desire to get acquainted with each other. This has been fostered by the Assembly. Few college customs bear such good results as does this one where everyone loosens up his serious look and comes out of his shell to shake hands with, and talk to, his neighbor. Most important of all, we have the student organizations, some of which are the Association, Lazy Club, Round Up Club and Poultry Association. These give us a still greater community of interest and stimulate the making of friendships. They contain in themselves the most practical means of coöperation with the underclassmen.

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The Cornell Countryman

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DECEMBER, 1907

"I Am a Cornellian"

AGAIN the *Countryman* extends a hearty welcome to the entering class of Short Course students who soon will form another class of students of Cornell while here in the College of Agriculture. It can, this year, welcome them to the new building in all the departments and to manifold improvements, conveniences and opportunities equalling if not surpassing those offered to similar classes anywhere in the country. A brief consideration of these opportunities may both prove of interest to the students themselves, and give a clearer idea of the work of the college. You Winter-course students are given the chance to hear, to learn from, to meet professors who are specialists, and authorities in their lines, comprising the highest steps in the ladder of school-teaching—university instruction. Laboratories, equipment, apparatus—everything is offered you, together with the sincere good wishes and encouragement of the college. The Assembly, held on the first Thursday of each month, is the place to meet each other, to find new comrades and friends, and one and all are invited and urged to join in its activity. The Agricultural Association and the various clubs are open to you with an invitation to enter into their debates, discussions and every form of student life. The *Countryman* offers its services in any way and will be glad to receive visits, suggestions and criticisms from you.

And perhaps the idea occurs to you, as it seems that it should at least to some, "What do we do to get this? In what way can we feel and show an appreciation of what the State and the College are endeavoring to do for us?" The answer is in itself simple and clear—while you are Cornellians *be* Cornellians in every sense. Become students of the College of Agriculture in more than name. Live up to the standard at which you wish to be placed as University men. Coming from your farms and homes, you are entering a new life, one that will back you up in the future, and mean much to you wherever you may go. In your future work, in your efforts to increase and promote agriculture, it must be a power behind you, a strength and a help to your every attempt to be of use to the world. *I am a Cornellian!* Remember that, live up to it, be proud and worthy of it always, and whatever obligation you may feel toward those who, wishing you well, are trying to help you, will be repaid in full.

A Word of Appreciation

WITH the desire to give recognition to those acts which are especially grateful and kind, we wish to express in behalf of the College and ourselves, our appreciation of the courtesy and true, generous kind-

ness of the Brazilian Government in regard to the late M. M. Underdown, who, remembered as a devoted Cornellian and a friend, became a worker in that country. We have heard with much gratitude of its efforts and action since his death in dealing generously with his family in a financial way, and in providing for the return of his body to his home. It is such acts as these, slight, perhaps, in international relations, but great in their own meaning, that bind two peoples closer together through ties of personal gratitude, friendship and sympathy.

Active Life

Our College has grown and is growing—wonderfully—and on every side we find cause for increased pride in its activity and the promise of further development and possibilities. We have at last a building of our own, and such a building as can be placed among the very foremost of its kind. We have our clubs, our associations, our teams, all our activities, and with each one the unity, the solidarity, the strength of the College is emphasized and intensified. Take for example, one week, beginning November 4 and consider the opportunities of various kinds offered in that time. On Monday a meeting of the Round-Up Club, and the Chrysanthemum Show at the Lazy Club; on Tuesday an Association meeting with a talk on Jamaica; on Thursday the Assembly, on Friday an important address on plant breeding. This may be exceptional, but nevertheless it is, in its significance typical, and simply shows that the College is alive and very much so.

An Undesirable Possibility

But just here arises a thought, a precautionary idea, concerning a possible outgrowth of this condition. We strive for unity, for strength, for accomplishment as a College, but we must not allow even a hint of separation from the University activities to creep in. We are but a part of Cornell, and while indeed, it must be our aim to make that part as large, as important, as strong in itself as possible—yet it must still remain that part and as such contribute to the success of the University. It would be very easy, now that we have a home, a seat here on the highest and finest point of the grounds, to lose track of some of the lesser activities that are associated with the campus in its strictest sense. It would be easy to fail to mingle at times with the students of the other courses from whom we can derive benefit, the broadening, liberal effect of association and the exchange of ideas. We pride ourselves on belonging to a college which gives a broad, a full education, one that develops all sides of the character and increases its capacity for satisfaction and gratification, and we must keep it so by keeping in touch, in the closest way, with the University as a whole. And that means in many ways,—through debate clubs, athletics, class politics, and all the student activities as well as through an occasional course or lecture or concert that is not agricultural. Perhaps this point of view is unnecessary; let us hope that it is and will remain so. Indeed the College is at present well represented in practically all the fields that have been mentioned. But let it be rather a point to be kept in mind and avoided, and in building up the New

York State College of Agriculture, in widening its sphere of influence, let us remain in the broadest sense students of the University and in that way effect the best of all results—mutual advantage.

Light or Darkness

UNTIL a short time ago, the student body deplored the absence of lights along the approaches to the building. At last a certain amount of illumination has been furnished, but the question arises in our minds whether darkness, which at least is artistic, might not be preferable to the clusters of electric bulbs supported by antennae like brackets which grace (?) the western corners of the agronomy building. Consistency, if nothing else, and architectural beauty which cannot be suppressed, both call for something at least in keeping with the remainder of the buildings and bearing, if possible, some little touch of artistic thoughtfulness. In contemplating the wirey supports as one approaches the building, the related idea occurs to us—whether, if expense is a factor, certain or all of the substantial but hitherto futile flower-pots, along the top of the loggie might not have been spared, to provide for a series of lights embodying both artistic merit and undeniable usefulness.

GENERAL AGRICULTURAL NEWS

The Scientific American for October 12, contains an artical entitled "A New System for the fixation of Atmospheric Nitrogen" by F. S. DeBrazza. The time is not far distant, the author tells us, when the present sources of nitrogenized products will be entirely exhausted. This fact has led to attempts to fix the nitrogen of the air which occurs in a practically unlimited amount. For this two processes have been found industrially promising. The first makes use of an electric spark; the second is the fixation of nitrogen upon carbides heated to very high temperatures. The second method, which has proven the more satisfactory economically, is based upon the property of calcium carbide to fix nitrogen at a temperature of about 1000° C. The result is calcium cyanamide, $CaCN_2$. When the nitrogen in this product is united with water under high pressure, it changes into ammonia. $CaCN_2+H_2O=CaCO_3+2NH_3$. This gives the long sought for solution of the problem of producing ammonia and ammoniacal salts from atmospheric nitrogen. "It remained, however, to make this process economic, practical and industrial." To obtain pure nitrogen directly from the atmosphere it is necessary to separate it from the oxygen with which it is combined. After several experiments it was fouud economically possible to do this by liquefaction of the air and fractional distillation of the gases; the boiling points of liquid oxygen and liquid nitrogen being different. This process can be employed on a large scale. At Piano d'Orte, Italy, where the first factory in the world for the fixation of atmospheric nitrogen has recently been established, the carbon is ground into a very fine powder and placed in special iron retorts. It is then heated up to from 800° to 1000° C., and at the same time powerful pumps blow over it a continuous current of nitrogen which has been obtained from liquid air as mentioned above. The carbide fuses in the intense heat, and in about two hours is changed into calcium cyanamide. Calcium cyanamide is a very dark mass composed of extremely small crystals, free carbon and a small quantity of calcium carbide that has

not been transformed. The whole mass must be finely ground and exposed to the air for some days, in order that water vapor in the air may remove the calcium carbide. Calcium cyanamide contains 14 to 24 per cent of nitrogen, 40 to 42 per cent calcium and 17 to 18 per cent carbon. In agricultural practice it has proven itself equal, if not superior, to various other mineral fertilizers. Its manufacture, however, demands very great electric power, and will only be profitable where this can be obtained at a small cost.

* * *

Reports indicate a marked shortage in all crops for the year 1907. The total wheat yield is estimated at 625,000,000 bushels, or 100,000,000 less than last year. The corn crop shows a falling off of about 16 per cent from 1906, and will aggregate approximately 2,500,000,000 bushels. The total production of standard cereals (corn, wheat, oats, rye and barley) will this year be about 4,046,000,000 bushels, as compared with 4,840,000,000 bushels last year and 4,520,000,000 bushels in 1905. The cotton crop will be about 12,000,000 bales which is as good as the average for the last four years, but which is one million bales less than last year. However prices for all kinds of farm products are unusually high, and the decrease in the quantity of the output will in no way limit the income of the American farmer.

* * *

Nowhere are the increased prices for all farm products more strikingly indicated than in the case of the apple, which shows a shortage in crop of 11 per cent from last year. Mr. Vanderbilt, of Hood River, Oregon, sold forty bushel boxes of the Winter Banana apple to a Portland dealer for $8 a box, and the dealer in turn sold them to a New York buyer for $12 a box. Prices like these mean that the New Yorkers will pay over twenty cents each for fancy apples. The Hood River Apple Growers' Union has marketed its crop of Spitzenbergs at $3.27½ per box, and Newton Pippins at $2.75 per box. Dr. A. E. Miller of Austin, Colorado, has obtained a crop of 15,000 boxes of fancy apples from forty acres, and expects to sell them for at least $3.00 per box. Dr. Miller last year refused an offer of $40,000 for this orchard.

* * *

Statistics gathered and compiled by the Spokane Chamber of Commerce show that the Inland Empire, embracing 150,000 square miles in eastern Washington, northern Idaho, western Montana, northeastern Oregon and southeastern British Columbia, will produce this year, exclusive of manufactures and imports, $267 per capita of the estimated population of 500,000 or more than $1,200 for the average family, as against $119 per capita, including agriculture, manufacture and imports, of the entire United States, according to government census reports. The figures follow:

Wheat, 50,000,000 bushels, 75 cents (Average yield: Spring wheat 24.5 bu.; winter wheat 21.5 bu. the acre)	$37,500,000
Lumber, 1,250,000,000 to 1,300,000,000 feet	17,000,000
Minerals, estimated output of district	32,000,000
Apples and other fruits	14,000,000
Dairy products of district (estimated)	5,000,000
Live stock and poultry products (estimated)	14,000,000
Farm products (not included in foregoing)	14,000,000
Total	$133,500,000

* * *

The November Review of Reviews contains an account of the Macdonald College at Ste. Anne de Bellevue, Quebec. This is an Agricultural College which has just been built by Sir William Macdonald, of Montreal, at a cost of $2,000,000, and which he has endowed to the extent of $2,000,000 more. The College has three Departments—the School for Teachers, The Agricultural School and The School of Household Science. In addition to the regular courses, it offers short courses in all these branches.

Dr. W. H. Jordan, Director of the New York State Experiment Station, in an address at the recent convention called by the Syracuse Chamber of Commerce endeavored to show by statistics that Agriculture in New York is not decadent. He considered the decrease in agricultural population as the result of a readjustment of the country to meet new conditions caused by the invention of machinery, and the rise of great manufacturing centers. He believes the abandoned farms to be nothing more than an outgrowth of the existing conditions. Dr. Jordon heartily approves of the laboratory style of school house, and would have it the center of all interest in a community.

* * *

"Cider and Vinegar Making as a Means of Preventing Waste in the Orchard" is the title of a suggestive article in Green's Fruit Grower for October. A first class cider mill, according to the author, would be a valuable adjunct to every orchard, and if cleanliness and business methods were employed, it would be possible, at a profit to the operator, to turn out a much higher grade of cider than can now be secured. For the average farmer and fruit grower, however, vinegar making is not a paying proposition, as it can be manufactured more cheaply in large distilleries.

* * *

The good results of the Bureau of Animal industry in controlling sheep scab are now becoming apparent. On the 15th of October, Secretary Wilson ordered the quarantine removed from the states of Idaho and Wyoming, for it appears that the disease is entirely eradicated in those regions. Good headway is being made in other states, and the men in charge of the work are confident that in a few years this dreaded pest will be a thing of the past.

* * *

The American Carnation Society will hold its annual exhibition at Washington, D. C., January 23–30, 1908. Among other prizes, is one offered by Peter Fisher, the originator of the Beacon carnation, of $12 for the best fifty blooms of that variety, $8 for the second and $5 for the third.

* * *

The National Grange met at Hartford, Conn., November 13–23. A plan for life insurance was submitted, and the biennial election of officers was held.

* * *

The November number of the American Poultry Advocate contains an interesting article describing the electrically operated incubators and brooders of the Cyphers Incubator Company. This latest step in the heating of incubators and brooders attracted considerable attention at the Thirty-second Annual Convention of the American Poultry Association held at Niagara Falls, N. Y., August 13–15, 1907. Professor Rice examined the electrical devices and became deeply interested in them. He hopes to have a sample of each of these incubators, installed in the incubator cellar at the New York State Agricultural College and operated for the benefit of the students and visiting public.

CAMPUS NOTES

The leveling and grading of the grounds surrounding the building, especially to the south, is rapidly being completed and already gives a good idea of the fine appearance that will result. Ten thousand crocus and tulip bulbs have been planted in the oval bed directly in front of the building, and eventually shrubs and other flowers will be set in other parts of the lawn.

* * *

During the Experimenters' League and Farmers' Week beginning February 17th, several important meetings are to be held here. A three days' poultry institute will be combined with the annual meeting of the New

York State Branch of the American Poultry Association and will be but one of several interesting gatherings.

It is hoped that there will be a reunion of regular and special students by classes, and of short course men by clubs, and all class secretaries are requested to communicate with the members of their classes. "Vital statistic" blanks will be sent to former students from the college in the hope of increasing the size of the reunion. Headquarters for the various classes will be provided in the building and it is hoped that a bureau of information will be instituted, with a chief, orderlies and guides to register and assign visitors to rooms in the city, to check baggage and to show new comers the grounds and buildings. A souvenir room will probably be provided for the flags, banners and trophies of various classes. Moreover some plan in regard to a "labor exchange" is also on foot.

During the week exhibits will be shown by the different departments, one evening will be devoted to a grand assembly of all the students, with a suitable program, and the end of the week will be given to the Experimenters' League Meeting. Results of experimental work will be given, and $100.00 in prizes will be distributed for the best essays on this subject. As usual lectures and discussions will be given by men prominent in agriculture. It seems almost unnecessary to urge the students to do all in their power to make the whole week a decided and rousing success.

* * *

Professor Stocking spent some time in Binghamton in November, and lectured before the Monday Afternoon Club on the milk supply of cities, and allied topics.

* * *

The official Dairy Instructors' Association decided at their meeting in Chicago during October, to hold their next meeting at Ithaca during the Graduate School of Agriculture. Professor Pearson was elected president of the organization.

The department of Dairy Bacteriology is working on the question of bitter milk and cream which is causing considerable trouble in the State. It is probably due to bacteria and the department is trying to locate the source of the trouble.

* * *

A part of the milk used in the dairy department during the winter will be obtained from a milk station on the Lehigh Valley railroad. The amount of milk supplied by patrons is increasing each winter.

* * *

The frontispiece presents a view from the dairy building, of the new Judging Pavilion which is also to be made the headquarters of the department of Animal Husbandry. Practically all the work inside has been completed and the main judging room will shortly be open for use. Already the classes are using the lecture room at the northern end of the structure. This room will accommodate 154 students, and being well lighted and convenient to the judging ring, offers many advantages. Directly over this is the office of Professor Wing and his assistants and the special laboratory for the investigation work of the department.

The office in the dairy building formerly occupied by Professor Wing is now used by the Poultry Department, and Professor Rice's former office has been turned over to the instructors in Dairy Industry.

* * *

In the extension course being conducted by Professor Tuck it has been planned to have each student who has elected more than one hour, take charge of some County in the State with reference to looking up and reporting on the agricultural conditions existing there. Twenty-one counties have already been chosen by the students. The first hour for credit will be devoted to practice in public speaking only.

The Library, at the south-eastern corner of the first floor of the main building was opened for students' use November 4th. It is in charge of Mr. A. J. Lamoreux.

* * *

Mr. Nikola Kaumanns, Imperial German Agricultural Attache to the United States, whose office is in Chicago, visited the College on October 29th.

* * *

On October 26th, W. H. Griffiths, Sp., who last year was in charge of the forcing houses, sustained a serious accident on Percy Field. In jumping over a fence after the Princeton game, he landed on one foot in such a way as to fracture two bones in his ankle. He was taken to the Infirmary and soon regained his old time cheerfulness, but has undergone a long, wearisome confinement since, and the students will be glad to see him in classes once more as soon as he is able to get around.

* * *

On the evening of October 25th, Mr. and Mrs. H. B. Fullerton of Long Island having consented to lecture at that time, a special meeting of the Association was called. The opportunity was taken advantage of by a large number of students and others interested in the work which is being done in the "pine-tree barrens" of the island. Mr. Fullerton began the lecture and with the assistance of a large number of lantern slides, gave a clear, interesting and optimistic account of what the Long Island Railroad Company has accomplished at its Experiment Stations at Wading River and Medford. After covering the more strictly agricultural phases of the work he gave way to Mrs. Fullerton, who, dealing with the more domestic and home-life at the station, concluded an instructive and interesting evening.

* * *

Considerable interest is being taken in the Round-Up Club this year, and already the membership is nearly forty. Excellent meetings are held every Monday evening, and lively and instructive discussions are maintained on topics of interest to Animal Husbandry students. For the meetings in November different members of the instructing staff gave reviews of Professor Davenport's recently published book, "Principles of Breeding." This work is something new, and embodies the latest ideas on that subject. Any one who is at all interested in Animal Husbandry cannot afford to miss these meetings.

* * *

The Pomological Division of the Department of Horticulture will hold its first fruit exhibit November 20 23 inclusive. This exhibit will be of great interest and educational value to the students as it will familiarize them with the different varieties of fruits from this State and many others, as well as give them some idea of the different methods of judging. Two sets of ribbons will be awarded, one for sectional exhibits and one for the best entry of a variety considering the country as a whole. The judges will be Professor Craig, Mr. T. B. Wilson and Mr. C. E. Hunn. The exhibit will be conducted entirely by the students under faculty supervision, though the department is defraying the expense of securing the fruit and enabling the committee to get a large assortment of various kinds of fruit from this State and other fruit sections of the country. Though many fruit growers have already disposed of their fruit, yet early indications point to a large exhibit.

The chairmen of the different committees chosen were, Fruits, L. A. Toan; Exhibit, Miss Salton and C. J. Hunn; Package, R. R. Robb; Arrangements, W. R. Salisbury; Awards, W. J. Sowder.

* * *

The affairs of the musical organizations of the College are rapidly increasing in importance and success. Early in November, there was a consolidation under a single constitution

and one set of officers, resulting in the formation of the Cornell Agricultural Glee and Mandolin Clubs. At that time the membership was about fifty-five, thirty of whom were in the Glee Club. By means of a strenuous but successful canvass of the student body at the November assembly, generous and essential financial assistance was secured.

* * *

On Friday evening, November 8th, the student body was extremely fortunate in being given the opportunity to hear Dr. Webber lecture on the work that has recently been done in Florida upon the improvement of hardy orange varieties. Having conducted most of the work himself, besides being in the foremost rank of plant-breeders in America, Dr. Webber was able to explain most clearly and completely the methods, results and significance of the work, giving detailed descriptions of the hybrids, and the parent forms, some of which may henceforth join the many organisms that have produced present types, while they themselves become gradually extinct. Having brought from the south a collection of the different varieties, he was also able to furnish concrete illustrations, and the "ade-making" qualities of several were tested in a way that appealed in more than one sense to the audience.

* * *

The annual Chrysanthemum Show, held under the auspices of the Lazy Club at its meeting on November 4th, and continuing throughout the week as an exhibition, was again a distinct success. In the enforced absence of Mr. Griffiths who had been in charge of the chrysanthemums, L. D. Batchelor, Assistant in Horticulture, made arrangements for the show, and succeeded in presenting a fine display. The great majority of blooms were from the forcing houses, and were unusually beautiful in color and form, comparing favorably with the exhibits sent from some of the out of town growers.

* * *

The second Assembly, on the evening of November 7th, was even more successful and enjoyable than the first, and was full of a spirit of geniality and activity that was most gratifying. It marked the first appearance this year of both the Glee and Mandolin clubs, who received, most deservedly, enthusiastic applause and commendation.

After opening the Assembly with Alma Mater, they gave two numbers and an encore, and were followed by a piano duet by Messrs. Rubinow and Sturgis. Dean Bailey then brought out many beauties and inspirations of November with its rain and drear—reading the sentiments of various "Nature-poets" in regard to it, and closing with a recitation of his new, long-waited-for poem on "The Rain." Succeeding his address, some ideas were expressed in behalf of the Glee club, and with the assistance and impetus of Professor Whetzel a collection was taken from those present for the maintenance of the clubs. As if in appreciation, the two clubs then gave admirable renditions of more numbers, after which the social hour was enthusiastically enjoyed. The matrons of the evening were Mesdames Craig, Cavanaugh, Troy, Mann, H. Riley and Ayers.

* * *

On November 8th and 9th, Professor Rice addressed an enthusiastic Poultry Institute at Oneonta, where endeavors are being made toward improved agricultural conditions. With him went also M. P. Jones, '08, this being the first instance in the development of the idea which led to Professor Tuck's course in Extension Work. It is hoped that with the training which this course affords many students will be enabled to address institutes and bring the farmers into closer touch with the college through channels of mutual benefit.

At a regular meeting of the Agricultural Association on November 5th, part of the business enacted was the presentation of shingles for intercollegiate athletic work.

FORMER STUDENTS

EDITORS' NOTE—We want to make the "Former Student" news one of the most interesting parts of the paper. To do this we are dependent on those who have graduated or left the college sending us news of their whereabouts and of what they are doing. We try to write each personally but this is a difficult task. You can save us time and expense by voluntarily sending in items of interest frequently. Won't you coöperate with us in making this the best part of the paper?

HORACE ATWOOD

'98, M. S. A.—Horace Atwood was born in Cayuga County, N. Y., on August 1, 1868, his parents having come from New England some time before. Entering Cornell in 1887, he took the regular course and was graduated in '91 with the degree of B. S. A. He accepted a position as Instructor of Agriculture at Pratt Institute, Brooklyn, but remained there but one year, entering the University of Wisconsin as a student in '93. After a year there he took a position in the creamery business and continued in that kind of work until chosen for Assistant Agriculturist at the West Virginia Experiment Station in 1897. Before taking up his work in that capacity however, he spent another year at Cornell, receiving his Master's degree. Since joining the staff of the Experiment Station, Mr. Atwood has been active in agricultural work and has joined the ranks of "making-good" Cornellians, though not "on the farm." He is author of "Lectures on Poultry Culture" and joint author of sixteen bulletins on various agricultural topics. Besides his position in the Station, he also holds that of Poultryman of the West Virginia State Board of Agriculture, and is a member of the Committee on Education of the American Poultry Association, the West Virginia Grange, the State Live Stock, and the American Breeders' Associations. In 1900 he marred Miss Susan Davies of Arden, N. Y., and now has his home at Morgantown, where we wish him every success and prosperity in his future work.

'06, M. S. A.—We learn that Professor Claude I. Lewis is still at the head of the Department of Horticulture in the Oregon Agricultural College at Corvallis. The department has been reorganized. Whereas formerly (May, 1906) there was but one member of the staff, there are now seven, and whereas courses in Horticulture were given only in the senior year, they may now be taken from the freshman year throughout the course. A horticulturists club, patterned after the Lazy Club, has been organized and students are enthusiastic over the work. Extensive experiments are being carried on under the Adams Fund. Professor Lewis was offered the Directorship of the Experiment Station at Puyallup, Washington, in August, but inducements of such a nature were offered him to remain at Oregon that he has decided to do so. He delivered a paper at the recent meeting of the American Pom-

ological Society at Jamestown, on "Features of Fruit Growing at Hood River, Oregon." Last but not least, Professor Lewis is the proud father of a daughter born October 14th.

'92, M. S. A.—Irwin D. Aldrich, who did some postgraduate work here in 1892 in the agricultural department, and was elected president of the Agricultural Society, is near his former South Dakota home, publishing a newspaper at Big Stone, and looking after the rentals of several farms which he owns in the vicinity. He has served the state as Regent of Education, and has been secretary of the board of Regents of Education for more than six years. This is a board of five members, which has entire charge of the seven state schools, the University, the State College of Agriculture and Mechanic Arts, the School of Mines, (in the Black Hills), and four Normal schools. He is married and has four children.

'06, B. S. A.—M. W. Evans writes us from Pullman, Wash., that he is still working on forage crop problems throughout the northwest as Agrostologist of the U. S. Department of Agriculture. He also has charge of a grass garden which the Department maintains there, in coöperation with the State Experiment Station. He says, "Washington State College is one of the best colleges in the northwest, but it has a long road to travel before it can compare with Cornell. It does me good to see what a reputation Cornell has. I have talked with at least seven or eight students, who are expecting to go to Ithaca for postgraduate work after completing their course here." We note that Evans has not lost the Cornell spirit.

'06, B. S. A.—Since January 1, 1907, Wilfrid G. Brierley has been connected with the National Farm School, Pa., as Horticulturist. He teaches Botany and Horticulture, and is Superintendent of the grounds and orchards. The school has a large modern greenhouse 100 x 43 feet, and grows carnations and tomatoes for the Philadelphia market.

'06, B. S. A.—H. L. Westover was appointed to the United States Soils Survey in April of his Senior year, and took up the work immediately. Since then he has been working in various parts of the South, particularly in Alabama. He has recently been changed from Eastern Maryland to Corpus Christi, Texas. Before going to his new location Mr. Westover was given a vacation and improved a part of it by calling on his old friends at Cornell. He was greatly pleased at the progress made in the college since he last saw it.

'05, B. S. A.—S. M. Herrick came to Cornell to specialize in Agricultural Chemistry, and shortly after graduating was appointed First Assistant Chemist at the State Experiment Station, Blacksburg, Va. This position he now retains.

'88, B. S. A.—G. D. Brill formerly of Lake Placid Club is now superintendent of the Broad Brook Farm at Bradford Station, N. Y.

'06, B. S. A.—J. H. Barron was in town for a few days last month. He is still Assistant in Agronomy at Pennsylvania State College, State College, Pa.

'06, B. S. A.—We were pleased to receive a visit from C. F. Shaw, Assistant Professor of Soils at State College, Pa. He enjoyed the Princeton game with us.

'05, B. S. A., '07, M. S. A.—L. G. Dodge has been Scientific Assistant in the Bureau of Farm Management, Wash., D. C. He is working on Farm Management problems in New York and New England. We were glad to see him in town a few days in the early part of the month.

'05, M. S. A.—A. W. Gilbert is taking advanced work here with intentions of taking up teaching work after obtaining his Ph. D.

'05, Sp. Word reaches us that F. H. Cardozo resigned on September 15, 1907, as Horticulturist at the Tuskeegee, Ala., Agricultural Experi-

ment Station, to accept a better position in a larger field of work. He is now Director of the Agricultural Department in the Florida State Normal and Industrial School, for colored students, at Tallahassee, Florida. Mr. Cardozo is very successful in his work at this school. We acknowledge his subscription to the "best agricultural journal in this country, *The Cornell Countryman*. Please don't let me miss a number as I feel lonely without it." A daughter was born to Mr. and Mrs. Cardozo on June 8, 1907.

'06, Sp.—Ernest Kelly has resigned as Sanitary Milk Inspector at the Fairfield Farms, Caldwell, N. J. He is now testing for this station, being at present engaged in testing the University herd. Mr. Kelly spent four years at Cornell, specializing in dairy work.

'03, Sp.—F. H. Richards has resigned as farm superintendent for Dr. E. F. Brush at Mount Vernon, N. Y. He was in town for a few days last month.

'03, Dairy. Burt Bell has for some time been manager of the McDermott Creamery and Shipping Station at Smyrna, N. Y. Some time ago he was married to Miss Stella Wilbur of Upperville, N. Y. In the spring of 1907 he went to Canton, N. Y., to take charge of A. McDermott's ice plant at that place.

'06, W. P.—Walter L. Lyon was married to Miss Anna Lwettgerott, at Kilbourne, Wisconsin, on Oct. 29, 1907.

'05, W.—A. M. Gillespie was back for a few days recently and attended the November Assembly.

BOOK REVIEWS

FORAGE CROPS. By E. B. Voorhees, Director New Jersey Experiment Station, Professor of Agriculture, Rutgers College. Illustrated. 5½x8 inches. 400 pages. Cloth. The Macmillan Company, New York. Price $1.50.

This new addition to the Rural Science Series, though full of interesting and practical information for the general farmer, should be of special interest to dairymen. While primarily a discussion of the value and growing qualities of the common varieties now used for soiling crops, it also serves as a complete guide in the choice of new kinds. Much emphasis is placed upon such rotations as shall give, among other things, a continuous supply of forage throughout the growing season. By considering forage crops as roughage, the author includes not only the crops used in soiling systems but also those used for pasture, hay and silage. Thus after mentioning the general, and relative values of succulent and other kinds of feeds, he takes up in regular order the different forage or roughage crops—as for example, millet, corn, alfalfa, the clovers, root-crops, etc. In each of these divisions —which are well illustrated throughout, he enumerates the conditions under which the different crops may be grown, and discusses their relative advantages and disadvantages. In short this book would seem to fill an important place in the library of the dairyman and farmer.

INSECTS INJURIOUS TO VEGETABLES. By F. H. Crittenden, Sc. D., U. S. Dept. of Agriculture. Illustrated. 5½x8 inches. 300 pages. Cloth. Orange Judd Company, New York. Price $1.50

In this volume we find an extensive and important subject comprehensively treated in a convenient and interesting manner. It may be roughly divided into two general divisions, the first discussing the broader side of the subject, the second taking up specific crops and their particular insect enemies and the methods of combatting them. The first part of the book is subdivided into considerations of entomology in general, the effect of ordinary farming methods on insect pests, mechanical preventitive measures, and a brief treatment of spraying apparatus and mixtures.

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his insect enemies in a not too technical way, this book will prove a "find." Yet it is in no wise elementary, as much of the material is compiled and practically all the illustrations are taken, as the author says, from bulletins, government investigation and other authentic sources. The illustrations are profuse and succeed in giving a very good idea of the pests described.

PRACTICAL DAIRY BACTERIOLOGY. By Dr. H. W. Conn, Wesleyan University. Illustrated. 5½x8 inches. Cloth. Orange Judd Company, N. Y. Price $1.25.

The very name of the author would call attention to this new book and the reader would not be disappointed after further investigation. As both a manual for the use of bacteriological students, and a reference and instructive book for the dairyman and up-to-date farmer this volume fulfils its mission. As Dr. Conn remarks the time has come when every dairyman must have a knowledge of bacteriological principles, and just such a knowledge can be gained from this treatise.

It is divided into two distinct parts, the first and larger, being devoted to a consideration of general bacteriology, an enumeration and description of all dairy organisms, an explanation of their relation to all phases of dairy industry and advice as to the necessary precautions in obtaining clean, healthy products. The second division is in the form of a laboratory manual, and while it is especially designed for student readers, it also offers information and instruction that can be made use of by the practical agriculturist. The book is profusely illustrated throughout, the cuts showing the various kinds of bacteria and views of conditions, etc., elucidating the more general portions of the text.

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